Beal Slough Basin Stormwater Master Plan

May 2000

Soil Legend and Hydrologic Soil Group I-5 **Table of Contents Table Number continued** Title **Section Number** Title **Pond Characteristics** I-6 I-7 Beal Slough Historic Storm Distribution **EXECUTIVE SUMMARY** I-8 Beal Slough 24-hour Type II Storm Distribution I-9 **Drainage Subbasin Characteristics** SECTION I **BASIN EVALUATION** I-10 100-year Peak Flow Rate Comparison of 1997 to FIS Values PLANNING AREA DESCRIPTION Annual Pollutant Loads Estimated from 1992 Monitoring Results I-11 **HYDROLOGY** I-12 Inventory of Industrial Facilities **HYDRAULICS** I-13 Monitoring Site Description WATER QUALITY I-14 **Results of Chemical Analysis** STREAM SEGMENT EVALUATION I-15 Comparison of Beal Slough Sampled Data to NURP Data **EVALUATION SUMMARY** I-16a Comparison of Bridge Capacity Mainstem Channel I-16b Comparison of Bridge Capacity Tributary Channels **SECTION II MASTER PLAN** I-17a Comparison of Stream Reach Capacity Mainstem Channel PLAN FORMULATION I-17b Comparison of Stream Reach Capacity Tributary Channels **ISSUES ADDRESSED** Visual HEC-1 Reach and HEC-RAS Cross-section I-18 PROPOSED MASTER PLAN Labeling Key SECTION II MASTER PLAN **BIBLIOGRAPHY** MP-1 Target Peak Flow Rates at Selected Locations on the Mainstem MASTER PLAN CONDITIONS RUNOFF SUMMARY APPENDIX A MP-2 Target Peak Flow Rates at Selected Locations on the Tributaries for 2-year, 10-year, and 100-year Frequency Events MP-3 Subarea Target Peak Flow Rates for 2-, 10-, and 100-year Storms APPENDIX B Figures VI-1 through VI-11 from the Interim Basin Report MP-4 2-year Peak Flow Rate Comparison of 1997 Conditions to Master Comparison of Lincoln Stormwater Quality Data with National Urban & APPENDIX C Plan Conditions Denver Metropolitan Data MP-5 Preliminary Opinion of Approximate Cost for Major Capital Components Biological Assessment of Beal Slough APPENDIX D APPENDIX E Minor Storm Drain System Analysis Title **Figure Number Table Number** Title **EXECUTIVE SUMMARY EXECUTIVE SUMMARY** ES-1 Pattern of Development Map ES-1 Subarea Target Peak Flow Rates for 2-, 10-, and 100-year Storms ES-2 Basin Map ES-2a Target Peak Flow Rates at Selected Locations on the Mainstem ES-3 Growth in Peak Flow Rates Target Peak Flow Rates at Selected Locations on the Mainstem ES-2b ES-4 Master Plan Major Capital Cost Components ES-3 Preliminary Opinion of Approximate Cost for Major Capital Components ES-5 Master Plan Improvement in Peak Flow Rates SECTION I BASIN EVALUATION

I-1

I-2

I-3

I-4

Hydrologic Parameters of the Basin

Development in the Watershed

Summary of 1997 Land Use in the Beal Slough Watershed

Comparison of Soil Associations Found in the Watershed

Beal Slough Basin Stormwater Master Plan

May 2000

Figure Number co	ontinued Title
SECTION I I-1 I-2 I-3 I-4 I-5 I-6 I-7 I-8 I-9 I-10 I-11 I-12	BASIN EVALUATION Locator Map Basin Map Land Use Future Land Use Existing Soil Types SCS Hydrologic Soil Groups Visual HEC-1 Schematic of Beal Slough Master Plan Model 1997 Land Use Map Future Hydrologic Conditions NPDES Stormwater Monitoring Site Location Map Photographic Key Map Channel Cross-section Comparison Between FIS 1978 and 1998 Channel
SECTION II	MASTER PLAN
MP-1 MP-2	Master Plan - Major Capital Cost Components Master Plan Improvements in Peak Flow Rates
MP-3 SG1-PC SG1-FP SG1-CD1 SG2-PC SG2-FP SG2-CD1 SG2-CD2 SG3-PC SG3-FP SG3-CD1 SG3-CD4 SG4-PC SG4-FP SG4-CD1 SG5-PC SG5-FP	Stream Segment Figure Key Map Stream Segment 1 Components - Salt Creek to 14 th Street Stream Segment 1 Plan and Profile - Salt Creek to 14 th Street Stream Segment 1 & 2 - Tieback Levee Concepts Stream Segment 2 Components - 14 th Street to 27 th Street Stream Segment 2 Plan and Profile - 14 th Street to 27 th Street Stream Segment 2 - Channel Concepts Stream Segment 2 - Water Quality Wetlands Concept Stream Segment 3 Components - 27 th Street to (3800E) Highway 2 Stream Segment 3 Plan and Profile - 27 th Street to (3800E) Highway 2 Stream Segment 3 - Tierra Park Off-channel Storage Facility near Tierra Drive Concepts Stream Segment 3 - Concept Off-Channel Storage Facility near 38 th Street Stream Segment 3 - Channel Stability Concept Stream Segment 4 Components - (3800E) Highway 2 to (5200E) Highway 2 Stream Segment 4 Plan and Profile - (3800E) Highway 2 to (5200E) Highway 2 Stream Segment 5 Components - (5200E) Highway 2 to Old Cheney Road Stream Segment 5 Plan and Profile - (5200E) Highway 2 to Old Cheney Road

Figure Number continued Title

SECTION II	MASTER PLAN (continued)
SG6-PC	Stream Segment 6 Components - Old Cheney Road to Pine Lake Road
SG6-FP	Stream Segment 6 Plan and Profile - Old Cheney Road to Pine Lake Road
SG7-PC	Stream Segment 7 Components - Pine Lake Road to 70th Street
SG7-FP	Stream Segment 7 Plan and Profile - Pine Lake Road to 70th Street
SG7-CD1	
SG8-PC	Stream Segment 8 Components - 70th Street to 84th Street
SG8-FP	Stream Segment 8 Plan and Profile - 70 th Street to 84 th Street
SG9-PC	Stream Segment 16 Components -70 th Street Tributary
SG9-FP	Stream Segment 16 Plan and Profile - 70th Street Tributary
SG10-PC	
SG10-FP	j ,
SG11-PC	3 · · · · · · · · · · · · · · · · · · ·
SG11-FP	
SG12-PC	
SG12-FP	
SG13-PC	, , , , , , , , , , , , , , , , , , ,
SG13-FP	, ,
	Tributary
SG14-PC	
	Tributary
SG14-FP	,
	Tributary
SG15-PC	, , , , , , , , , , , , , , , , , , ,
SG15-FP	, ,
SG16-PC	
SG16-FP	Stream Segment 12 Plan and Profile - King Arthur Court Tributary